

No. ....

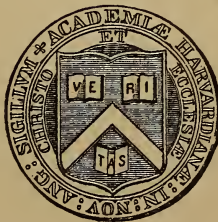
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ONE HUNDRED AND FIRST  
ANNUAL CATALOGUE  
OF THE  
MEDICAL SCHOOL  
(BOSTON)  
OF  
HARVARD UNIVERSITY.  
1883-84.

*[Reprinted from the Catalogue of the University.]*



CAMBRIDGE, MASS.  
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1883.



# THE MEDICAL SCHOOL.

BOSTON.

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Instruction in this School is given by lectures, recitations, clinical teaching, and practical exercises, uniformly distributed throughout the academic year. The year begins on the Thursday following the last Wednesday in September,\* and ends on the last Wednesday in June. There is a recess at Christmas, beginning December 23, and ending January 2; and a spring recess, beginning on the Wednesday before Fast Day, and ending on the following Tuesday, inclusive.

The course of instruction has been greatly enlarged, and is so arranged as to carry the student progressively and systematically from one subject to another, in a just and natural order.

In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory-work is substituted for, or added to, the usual didactic lectures, and is as much required of every student as attendance at lectures and recitations.

The course of study recommended by the Faculty covers four years, but until further notice the degree of Doctor of Medicine will continue to be given upon the completion of three years of study, to be as ample and full as heretofore. The degree of Doctor of Medicine *cum laude* will be given to candidates who have pursued a complete four years' course, and obtained an average of 75 per cent in all the examinations of this course. In addition to the ordinary degree of Doctor of Medicine as heretofore obtained, a certificate of attendance on the studies of the fourth year will be given to such students desiring it as shall have attended the course, and have passed a satisfactory examination in the studies of the same.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three and four year's period of study, a series of written examinations on all the main subjects of medical instruction has been distributed for regular students through their entire course of study. Every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction, at some time during his period of study.

\* That the time of study shall count as a full term, students of every class must present themselves within the first week of the term and register their names with the Secretary.

A new building has just been completed at a cost of more than a quarter of a million of dollars. Its numerous apartments are spacious, well lighted, and provided with carefully contrived apparatus for heating and ventilation. The comfort and convenience of the students have been constantly borne in mind in the arrangement of rooms, the construction of seats, and in the furnishing of the various laboratories, halls for lectures, and rooms for recitation, study, and conversation. The building is devoted to laboratory instruction and didactic teaching, while the general and special clinics take place at the various hospitals and dispensaries. Greatly enlarged and improved facilities are offered at the Massachusetts General Hospital and the Boston Dispensary, both of which institutions have constructed buildings to meet the constantly increasing demands for their usefulness.

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### FACULTY.

CHARLES W. ELIOT, LL.D., *President.*

HENRY P. BOWDITCH, M.D., *Dean, and Professor of Physiology.*

OLIVER W. HOLMES, M.D., LL.D., *Professor of Anatomy, Emeritus.*

HENRY J. BIGELOW, M.D., *Professor of Surgery, Emeritus.*

FRANCIS MINOT, M.D., *Hersey Professor of the Theory and Practice of Physic.*

JOHN P. REYNOLDS, M.D., *Professor of Obstetrics.*

CALVIN ELLIS, M.D., *Jackson Professor of Clinical Medicine.*

HENRY W. WILLIAMS, M.D., *Professor of Ophthalmology.*

DAVID W. CHEEVER, M.D., *Professor of Surgery.*

JAMES C. WHITE, M.D., *Professor of Dermatology.*

ROBERT T. EDES, M.D., *Professor of Materia Medica.*

CHARLES F. FOLSOM, M.D., *Assistant Professor of Mental Diseases.*

FREDERICK I. KNIGHT, M.D., *Assistant Professor of Laryngology.*

CHARLES B. PORTER, M.D., *Assistant Professor in Surgery.*

J. COLLINS WARREN, M.D., *Assistant Professor in Surgery.*

REGINALD H. FITZ, M.D., *Shattuck Professor of Pathological Anatomy.*

WILLIAM L. RICHARDSON, M.D., *Assistant Professor of Obstetrics.*

THOMAS DWIGHT, M.D., *Parkman Professor of Anatomy.*

EDWARD S. WOOD, M.D., *Professor of Chemistry.*

WILLIAM H. BAKER, M.D., *Assistant Professor of Gynaecology.*

WILLIAM B. HILLS, M.D., *Instructor in Chemistry.*

WILLIAM F. WHITNEY, M.D., *Secretary, and Curator of the Anatomical Museum.*



## OTHER INSTRUCTORS.

- SAMUEL H. DURGIN, M.D., *Lecturer on Hygiene.*  
 FRANK W. DRAPER, M.D., *Lecturer on Forensic Medicine.*  
 HENRY P. QUINCY, M.D., *Instructor in Histology.*  
 EDWARD N. WHITTIER, M.D., *Instructor in the Theory and Practice of Physic.*  
 FRANCIS A. HARRIS, M.D., *Demonstrator of Medico-legal Examinations.*  
 WILLIAM P. BOLLES, M.D., *Instructor in Materia Medica.*  
 EDWARD H. BRADFORD, M.D., *Assistant in Clinical Surgery.*  
 FRANCIS H. DAVENPORT, M.D., *Assistant in Gynaecology.*  
 GEORGE M. GARLAND, M.D., *Assistant in Clinical Medicine.*  
 JOSEPH W. WARREN, M.D., *Assistant in Physiology.*  
 CHARLES S. MINOT, S.D., *Instructor in Histology and Embryology.*  
 MAURICE H. RICHARDSON, M.D., *Demonstrator of Anatomy.*  
 WILLIAM W. GANNETT, M.D., *Assistant in Pathological Anatomy.*  
 WILLIAM C. EMERSON, M.D., *Assistant in Chemistry.*  
 SAMUEL J. MIXTER, M.D., *Assistant in Anatomy.*  
 WALTER J. OTIS, M.D., *Assistant in Anatomy.*  
 CHARLES HARRINGTON, M.D., *Assistant in Chemistry.*

The following gentlemen will give special clinical instruction:—

- JOHN HOMANS, M.D., *in the Diagnosis and Treatment of Ovarian Tumors.*  
 FRANCIS B. GREENOUGH, M.D., and ABNER POST, M.D., *in Syphilis.*  
 OLIVER F. WADSWORTH, M.D., *in Ophthalmoscopy.*  
 J. ORNE GREEN, M.D., and CLARENCE J. BLAKE, M.D., *in Otology.*  
 AMOS L. MASON, M.D., and FREDERICK C. SHATTUCK, M.D., *in Auscultation.*  
 JOSEPH P. OLIVER, M.D., and THOMAS M. ROTCH, M.D., *in Diseases of Children.*  
 SAMUEL G. WEBBER, M.D., and JAMES J. PUTNAM, M.D., *in Diseases of the Nervous System.*  
 JAMES R. CHADWICK, M.D., *in Diseases of Women.*

The Medical School is at the corner of Boylston and Exeter Streets, Boston, and the address of the Dean is Dr. H. P. Bowditch, Harvard Medical School, Boston.

## STUDENTS.

## COURSE FOR GRADUATES.

Bancroft, Winfred Baxter, M.D.,	<i>Boston.</i>
Ellis, Fred Warren, M.D.,	<i>Monson.</i>
Foster, Charles Chauncy, A.B., M.D.,	<i>Cambridge.</i>
Huse, George Wood, A.B., M.D.,	<i>Boston.</i>
Leach, Phillip, M.D. ( <i>Rush Med. Coll.</i> ),	<i>Newport, R. I.</i>
Morrill, Ferdinand Gordon, M.D.,	<i>Boston.</i>
Nelson, Samuel Newell, A.B., M.D.,	<i>Boston.</i>
Stevens, William Stanford, A.B., M.D.,	<i>Boston.</i>
Terry, Charles Church, M.D. ( <i>N. Y. Med. Coll.</i> ),	<i>Fall River.</i>
Worcester, Alfred, A.M., M.D.,	<i>Waltham.</i>
Young, John Franklin, M.D. ( <i>Columbia Coll.</i> ),	<i>Newburyport.</i>

## FOURTH CLASS.

Barstow, Henry Taylor, A.B.,	<i>Boston.</i>
Buckley, Philip Townsend, A.B.,	<i>Boston.</i>
Chase, George Thorndike, A.B.,	<i>Salem.</i>
Clark, Arthur Wellington,	<i>Lawrence.</i>
Daniels, Frank Herbert, A.B.,	<i>Boston.</i>
French, George Morrill, A.B. ( <i>Boston Univ.</i> ),	<i>Cambridge.</i>
Friend, Walter Morrison,	<i>Boston.</i>
Heustis, James Walter,	<i>Boston.</i>
Holden, Francis Marion,	<i>Boston.</i>
Jackson, Henry, A.B.,	<i>Boston.</i>
Kilburn, Henry Whitman, A.B.,	<i>Lowell.</i>
Stone, Eugene Potter,	<i>Boisé Barracks, Idaho.</i>

## THIRD CLASS.

Abbe, Alanson Joseph, A.B.,	<i>Dorchester.</i>
Boardman, William Sydney, A.B. ( <i>Amherst Coll.</i> ),	<i>Newburyport.</i>
Boyd, Samuel George,	<i>Nassau, Bahamas.</i>
Boyden, Franklin Edward, PH.G. ( <i>Mass. Coll. Pharm.</i> ),	<i>Boston.</i>
Brackett, Elliott Gray,	<i>Boston.</i>
Brewer, George Emerson, A.B. ( <i>Hamilton Coll.</i> ),	<i>Westfield, N. Y.</i>
Brown, Frank Dillon,	<i>Louisville, Ky.</i>
Brown, Wilfred Gardner,	<i>Leicester.</i>
Burgess, Oliver Graham,	<i>Boston.</i>
Burt, Frank Leslie, PH.B. ( <i>Tufts Coll.</i> ),	<i>Adams.</i>
Colburn, Willis William,	<i>Boston.</i>
Cole, George Edward,	<i>Sheboygan, Wis.</i>
Conlan, Simon Bernard, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Cambridge.</i>

Coolidge, Algernon, Jr., A.B.,	<i>Boston.</i>
Copp, Owen, A.B. ( <i>Dart. Coll.</i> ),	<i>Methuen.</i>
Cordeiro, Frederic Joaquim Barbosa, A.B.,	<i>Boston.</i>
Craig, Sidney Morgan,	<i>Pittsburg, Pa.</i>
DeLand, Charles Airmet,	<i>Warren.</i>
Dunham, Edward Kellogg, B.PH. ( <i>Columbia Coll.</i> ),	<i>Irrington, N. Y.</i>
Durant, Charles Edwin,	<i>Haverhill.</i>
Faulkner, Herbert Kimball,	<i>Keene, N. H.</i>
Fernald, Frank Clinton, A.B.,	<i>Philadelphia, Pa.</i>
Gates, George Wellesley,	<i>Brookline.</i>
Gifford, John Henry, A.B. ( <i>Haverford Coll.</i> ),	<i>Fall River.</i>
Gleeson, William Joseph,	<i>Boston.</i>
Gordon, Stephen Masury,	<i>Beverly.</i>
Greenleaf, Robert Willard, A.B.,	<i>Boston.</i>
Holcombe, Charles Henry,	<i>Milford, N. H.</i>
Howard, Herbert Burr, A.B.,	<i>Bellows Falls, Vt.</i>
Howe, Oliver Hunt,	<i>Dedham.</i>
Hussey, Frederick Daniel,	<i>Boston.</i>
Hyland, Jesse Burdette,	<i>Keene, N. H.</i>
Jeffries, John Amory, A.B.,	<i>Boston.</i>
Klinghammer, William Jerome, A.B. ( <i>Tufts Coll.</i> ),	<i>Somerville.</i>
Lane, Edward Binney, A.B.,	<i>Cambridge.</i>
Lovett, Robert Williamson, A.B.,	<i>Boston.</i>
Lux, Frederick William,	<i>San Francisco, Cal.</i>
MacDonald, William Gregory, A.B. ( <i>Boston Coll.</i> ),	<i>Boston.</i>
McOwen, Timothy Edward,	<i>Lowell.</i>
Merrill, Edward Roscoe, A.B.,	<i>Andover.</i>
Munro, John Cummings, A.B.,	<i>Lexington.</i>
Murphy, Frank Charles,	<i>Taunton.</i>
Murphy, Joseph Patrick,	<i>Boston.</i>
Noyes, William, Jr., A.B.,	<i>Malden.</i>
Perry, Arthur Pedro,	<i>Boston.</i>
Phillips, Jerrie Knowlton,	<i>Bangor, Me.</i>
Potter, Silas Allen, A.B.,	<i>Boston.</i>
Pratt, Jonathan Washburn, PH.G. ( <i>Mass. Coll.</i> <i>Pharm.</i> ),	<i>Boston.</i>
Prescott, William Herbert,	<i>Concord.</i>
Reynolds, Edward, A.B.,	<i>Boston.</i>
Richardson, William Shedd,	<i>Sturbridge.</i>
Sanford, Abbott, A.M. ( <i>Amherst Coll.</i> ),	<i>E. Bridgewater.</i>
Schram, Charles, A.B. ( <i>Yale Coll.</i> ),	<i>Milwaukee, Wis.</i>
Sears, George Gray, A.B. ( <i>Amherst Coll.</i> ),	<i>Boston.</i>
Spring, Clarence Walter, A.B. ( <i>Dart. Coll.</i> ),	<i>Lebanon, N.H.</i>

Stearns, Charles A, A.B. ( <i>Amherst Coll.</i> ),	<i>Boston.</i>
Strong, Frederick Emerson,	<i>Lancaster, Wis.</i>
Stuart, Frederic William, A.B.,	<i>Boston.</i>
Swan, William Donnison, A.B.,	<i>Cambridge.</i>
Swift, Robert, s.B.,	<i>Boston.</i>
Taft, Charles Ezra,	<i>Dedham.</i>
Talbot, Ambrose, Jr., A.B.,	<i>Everett.</i>
Townsend, Charles Wendell, A.B.,	<i>Boston.</i>
Tucker, Ernest Fanning, A.B. ( <i>Swarthmore Coll.</i> ),	<i>New York, N. Y.</i>
Twitchell, Edward Thayer,	<i>Keene, N. H.</i>
Warriner, Myron Anson,	<i>Warren.</i>
Watson, Willis, A.B.,	<i>Boston.</i>
Wellington, Charles Berwick,	<i>Cambridge.</i>

## SECOND CLASS.

Babcock, James Woods, A.B.,	<i>Chester, S. C.</i>
Bemis, John Merrick,	<i>Worcester.</i>
Bidwell, Walter Davidson, A.B. ( <i>Williams Coll.</i> ),	<i>Hyde Park.</i>
Breck, Samuel, B.S. ( <i>Columbian Univ.</i> ),	<i>Fort Snelling, Minn.</i>
Brigham, Frank Fontelle, A.B. ( <i>Brown Univ.</i> ),	<i>Westboro'.</i>
Bullock, Edwin Warren,	<i>Wellesley.</i>
Carroll, John Aloysius, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Worcester.</i>
Chase, Heman Lincoln, Jr., A.B.,	<i>Brookline.</i>
Cnoney, Frederick Edward,	<i>Rutland, Vt.</i>
Clark, George Stillman,	<i>Hardwick.</i>
Clark, Joseph Payson, A.B.,	<i>Boston.</i>
Cochrane, John McGregor, A.B.,	<i>Cambridge.</i>
Collins, David Aloysius,	<i>Boston.</i>
Conlan, Thomas,	<i>E. Cambridge.</i>
Crockett, Montgomery Adams, A.B.,	<i>Medford.</i>
Crowell, Samuel,	<i>Dennis.</i>
Danforth, William Henry, A.B.,	<i>Plymouth.</i>
Davis, Myron Henry,	<i>Belchertown.</i>
Delaney, Richard, A.B.,	<i>Woodville.</i>
Dunham, Carroll,	<i>Irvington, N. Y.</i>
Durand, Henry Strong, A.B. ( <i>Yale Coll.</i> ),	<i>Rochester, N. Y.</i>
Eaton, Franklin Maynard, A.B. ( <i>Yale Coll.</i> ),	<i>St. Stephens, N. B.</i>
Eldridge, David Gorham, Jr.,	<i>Yarmouth.</i>
Fiske, William Boyd, A.B.,	<i>Cambridge.</i>
Foster, Burnside, A.B. ( <i>Yale Coll.</i> ),	<i>Boston.</i>
Francis, George Hills, A.B.,	<i>Brookline.</i>
Gage, Homer, A.B.,	<i>Worcester.</i>
Gillespie, John, A.B.,	<i>Malden.</i>

Graves, Charles Burr, A.B. ( <i>Yale Coll.</i> ),	<i>New London, Conn.</i>
Haslam, Frank Alden,	<i>Boston.</i>
Holden, Austin,	<i>Cambridge.</i>
Holmes, Henry Elmer,	<i>Boston.</i>
Jones, Charles Dana,	<i>Milton, N.H.</i>
La Due, Elmer John,	<i>Boston.</i>
Lawrence, Frank Pere,	<i>Worcester.</i>
Leavitt, Byron Charles, A.B. ( <i>Dart. Coll.</i> ),	<i>Saco, Me.</i>
Locke, Horace Mann,	<i>Lockeford, Cal.</i>
Louis, Isaac,	<i>Boston.</i>
Lovitt, Israel Melbourne,	<i>Yarmouth, N. S.</i>
Lowe, Fred Messenger, A.B. ( <i>Yale Coll.</i> ),	<i>Cambridge.</i>
Lyman, Charles Baldwin,	<i>Salem.</i>
McDonald, Edward Valentine, A.B.,	<i>Fall River.</i>
McGowan, John Dennis,	<i>Boston.</i>
McLaughlin, Joseph Ignatius, A.B. ( <i>Boston Coll.</i> ),	<i>Boston.</i>
Morse, Frank Adelbert,	<i>Foxboro'.</i>
Munro, Walter Lee, A.M. ( <i>Brown Univ.</i> ),	<i>Bristol, R. I.</i>
O'Callaghan, John William, A.B.,	<i>Salem.</i>
Parsons, Frank Sears,	<i>Northampton.</i>
Perkins, George William, A.B.,	<i>Topsfield.</i>
Perkins, John Walter, A.B.,	<i>Hyde Park.</i>
Richardson, Benjamin Franklin,	<i>Middleton.</i>
Robbins, James Clarke,	<i>Bristol, R. I.</i>
Roe, Edward Drake, Jr., A.B. ( <i>Syracuse Univ.</i> ),	<i>Elmira, N. Y.</i>
Simmons, Gustavus Crocker,	<i>Sacramento, Cal.</i>
Smith, Hiram Fred Markley, B.S. ( <i>Mass. Agr.</i> <i>Coll.</i> ),	<i>N. Hadley.</i>
Stone, Charles Sinclair,	<i>Boston.</i>
Sweeney, Arthur Ambrose, A.B. ( <i>St. John's Coll.</i> , <i>N. Y.</i> ),	<i>Lawrence.</i>
True, Herbert Osgood,	<i>Antrim, N.H.</i>
Trumbull, Stephen, A.B. ( <i>Yale Coll.</i> ),	<i>Valparaiso, Chili.</i>
Twombly, Edward Lambert, A.B. ( <i>Yale Coll.</i> ),	<i>Boston.</i>
Ward, George Otis, A.M. ( <i>Brown Univ.</i> ),	<i>Worcester.</i>
Washburn, George Hamlin, A.B. ( <i>Amherst Coll.</i> ),	<i>Middleboro'.</i>
Williams, Charles Crosby, PH.G. ( <i>Mass. Coll.</i> <i>Pharm.</i> ),	<i>Boston.</i>
Woodbury, Frederick Clinton, A.B.,	<i>Boston.</i>

## FIRST CLASS.

Aiken, William Ford,	<i>New York, N. Y.</i>
Allen, Richard James,	<i>Watertown.</i>

Baldwin, Frederick William,	<i>Chelsea.</i>
Ball, Thomas Joseph, A.B. ( <i>Boston Coll.</i> ),	<i>E. Cambridge.</i>
Bancroft, Edward Erastus, A.B. ( <i>Amherst Coll.</i> ),	<i>Lancaster.</i>
Barnes, William, S.B.,	<i>Decatur, Ill.</i>
Bell, Robert Mowry, B.S. ( <i>Univ. of Minnesota</i> ),	<i>Minneapolis, Minn.</i>
Bennett, Harry Miller, A.B. ( <i>Rochester Univ.</i> ),	<i>Springfield, O.</i>
Blodgett, Stephen Haskell,	<i>Boston.</i>
Boardman, George Jordan, B.S. ( <i>N. H. Coll. of Agric.</i> ),	<i>Lawrence.</i>
Brennan, John Joseph,	<i>Milford.</i>
Brownrigg, John Sylvester,	<i>Roxbury.</i>
Burrage, Walter Lincoln, A.B.,	<i>Boston.</i>
Cahill, Charles Sumner,	<i>Cambridge.</i>
Callanan, Sanson Aloysius, A.M. ( <i>Boston Coll.</i> ),	<i>Boston.</i>
Carter, Cyrus Faulkner,	<i>Millbury.</i>
Cochran, William James,	<i>Milford.</i>
Cook, Irving Sherburne, A.B. ( <i>Tufts Coll.</i> ),	<i>Woonsocket, R. I.</i>
Crothers, Frederick Arthur,	<i>E. Cambridge.</i>
Cushing, Edward Fitch, PH.B. ( <i>Cornell Univ.</i> ),	<i>Cleveland, O.</i>
Davenport, James Henry, PH.B. ( <i>Brown Univ.</i> ),	<i>Fall River.</i>
De Almeida, Louis Augusto,	<i>San Paul, Brazil.</i>
Dodge, William Wooldredge, A.B. ( <i>Tufts Coll.</i> ),	<i>Marblehead.</i>
Dow, Edmund Scott, A.B.,	<i>Brookline.</i>
Draper, Frank Eugene,	<i>No. Attleboro'.</i>
Dwyer, John Edward,	<i>Cambridge.</i>
Eaton, Percival James, A.B.,	<i>Maplewood.</i>
Edmunds, Charles Dole, A.B. ( <i>Colby Univ.</i> ),	<i>E. Corinth, Me.</i>
Ehrlich, Henry,	<i>Boston.</i>
Fay, William Eastman, A.B. ( <i>Univ. of Minnesota</i> ),	<i>Minneapolis, Minn.</i>
Ferry, James Francis,	<i>Cambridge.</i>
Fisk, Arthur Lyman, A.B. ( <i>Yale Coll.</i> ),	<i>Northampton.</i>
Fiske, Eustace Lincoln,	<i>Holliston.</i>
Foley, Walter James Paul,	<i>Boston.</i>
Foot, Charles Jenkins, A.B. ( <i>Yale Coll.</i> ),	<i>New Haven, Conn.</i>
Francis, Richard Pearce, A.B.,	<i>New York, N. Y.</i>
Gilfether, Frank Emmet,	<i>So. Boston.</i>
Gleason, William Francis,	<i>Milford.</i>
Greene, Ray Woodville, A.B. ( <i>Brown Univ.</i> ),	<i>Westerly, R. I.</i>
Greene, Robert Holmes, A.B. ( <i>Bowdoin Coll.</i> ),	<i>Brunswick, Me.</i>
Hallett, Walter Lewis, A.B. ( <i>Amherst Coll.</i> ),	<i>Mansfield.</i>
Heywood, George, Jr., A.B.,	<i>Concord.</i>
Holman, Samuel Morey, Jr., B.S. ( <i>Mass. Ag. Coll.</i> ),	<i>Attleboro'.</i>
Howard, Edward,	<i>Fall River.</i>

Jack, Ernest Sanford, A.B.,	<i>Portland, Me.</i>
Jillson, Franklin Campbell,	<i>Worcester.</i>
Leitch, John Alvin,	<i>Andover.</i>
Lewis, Edwin Ransome, Jr.,	<i>Westerly, R. I.</i>
Lilienthal, Howard, A.B.,	<i>Saratoga Springs, N.Y.</i>
Litch, John Goodrich,	<i>Boston.</i>
Lord, William Tyler, A.B.,	<i>Boston.</i>
Mahoney, John Burnard,	<i>Peabody.</i>
Manning, Charles Bolles, 2d,	<i>Rockport.</i>
Mara, Frank Timothy, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Boston.</i>
Mead, George Nathaniel Plumer,	<i>Everett.</i>
Miller, Robert Franklin Bunting, A.B. ( <i>Western Univ.</i> ),	<i>Alleghany City, Pa.</i>
Morrill, Fred Hiram,	<i>Nashua, N. H.</i>
Moses, Charles Wesley,	<i>Cambridgeport.</i>
Nichols, John Holyoke,	<i>Danvers.</i>
Norton, Eben Carver,	<i>Vinal Haven, Me.</i>
Nottage, Herbert Percy,	<i>Chelsea.</i>
O'Callaghan, Dennis Francis,	<i>Salem.</i>
O'Donnell, Francis Michael, A.B. ( <i>Boston Coll.</i> ),	<i>Marlboro'.</i>
O'Donnell, William,	<i>Boston.</i>
O'Meara, Michael John, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Worcester.</i>
O'Neill, James Bernard, A.B. ( <i>Middlebury Coll.</i> ),	<i>Bristol, Vt.</i>
Paul, Walter Everard, A.B.,	<i>Auburn, Me.</i>
Peters, Austin, B.S. ( <i>Mass. Ag. Coll.</i> ),	<i>Jamaica Plain.</i>
Pomeroy, William Henry, A.B. ( <i>Brown Univ.</i> ),	<i>Springfield.</i>
Pulsifer, William Moor, A.B. ( <i>Colby Univ.</i> ),	<i>Waterville, Me.</i>
Ramos, Frank Inkerman,	<i>Jamaica, W. I.</i>
Richards, George Lyman,	<i>Unionville, Conn.</i>
Robinson, John Franklin,	<i>Manchester, N. H.</i>
Ross, Carroll Baldwin, A.B. ( <i>Middlebury Coll.</i> ),	<i>Poultney, Vt.</i>
Sargent, George Amory, A.B.,	<i>Boston.</i>
Scudder, Charles Locke, A.B., PH.B. ( <i>Yale Coll.</i> ),	<i>Great Barrington.</i>
Smith, Herbert Llewellyn, A.B. ( <i>Dart. Coll.</i> ),	<i>Hudson Centre, N. H.</i>
Sprague, Richard, A.B.,	<i>Boston.</i>
Stearns, Daniel Waldo,	<i>Newton.</i>
Stone, Arthur Kingsbury, A.B.,	<i>Framingham.</i>
Stratton, William Edgar, A.B. ( <i>Johns Hopkins Univ.</i> ),	<i>Baltimore, Md.</i>
Thaw, Alexander Blair, .	<i>Pittsburg, Pa.</i>
Thaxter, Roland, A.B.,	<i>Kittery Point, Me.</i>
Tuttle, Albert Henry, S.B.,	<i>Boston.</i>
Upham, Henry Lauriston,	<i>W. Gardner.</i>

Webster, Jonathan Edward,  
 White, Fred Ferris,  
 Wiswall, Edward Hastings,

*Peabody.*  
*Newcastle, Pa.*  
*Wellesley.*

## SUMMARY.

RESIDENT GRADUATES . . . . .	11
FOURTH CLASS . . . . .	12
THIRD CLASS . . . . .	68
SECOND CLASS . . . . .	64
FIRST CLASS . . . . .	88
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TOTAL . . . . .	243



## THE MEDICAL SCHOOL.

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### REQUISITES FOR ADMISSION.

All candidates for admission, except those who have passed an examination for admission to Harvard College, must present a degree in Letters, Science, or Medicine, from a recognized college or scientific school, or pass an examination in the following subjects:—

1. **ENGLISH.** Every candidate will be required to write, legibly and correctly, an English composition of not less than two hundred words, and also to write English prose from dictation.

2. **LATIN.** The translation of easy Latin prose.

3. **PHYSICS.** A competent knowledge of Physics (such as may be obtained from Balfour Stewart's Elements of Physics).

4. **ELECTIVE SUBJECT.** Each candidate must pass an approved examination in any *one* of the following subjects: French, German, the Elements of Algebra or of Plane Geometry, Botany.

Whenever the candidate shall give evidence of having passed a satisfactory examination in any of the above requirements either at Harvard College or at the Lawrence Scientific School, a subsequent examination in such subjects will not be demanded for his admission to the Medical School.

The examinations will be held at the Medical School and conducted in writing; specimens of the papers used will be sent on application to the Dean. In judging the work of the candidate, the spelling, grammar, and construction will be considered.

*The examinations for admission* are held in June and September, on the Monday preceding the last Wednesday in those months, beginning at 10 A.M.

In 1884 the *examinations for admission* will ALSO be held at the following places, beginning at 8 A.M. on Thursday, June 26:—

In *Exeter*, in rooms of the Phillips Exeter Academy; in *Andover*, in rooms of the Phillips Academy; in *New York*, in the lecture-room of the Young Men's Christian Association, Twenty-third Street, corner of Fourth Avenue; in *Philadelphia*, in the library-hall of the Academy of Natural Sciences, S. W. corner of Nineteenth and Race Streets; in *Cincinnati*, in the rooms of the Law School of the University of Cincinnati, College Building, Walnut Street; in *Chicago*, in the rooms of the Chicago Athenaeum, 50 Dearborn Street; in *St. Louis*, in the Central

High School building, corner of Olive and Fifteenth Streets; in *San Francisco*, in rooms of the Boys' High School, on Sutter Street, between Gough and Octavia Streets.

## DIVISION OF STUDIES.

### FOUR YEARS' COURSE.

*For the First Year.* — Anatomy, Physiology, and General Chemistry.\*

*For the Second Year.* — Practical and Topographical Anatomy, Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, Surgery, and Clinical Surgery.

*For the Third Year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

*For the Fourth Year.* — Ophthalmology, Otology, Dermatology, Syphilis, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Obstetrics, Clinical and Operative Obstetrics, Clinical Medicine, Clinical and Operative Surgery, Forensic Medicine.

### THREE YEARS' COURSE.

*For the First Year.* — Anatomy, Physiology, and General Chemistry.\*

*For the Second Year.* — Practical and Topographical Anatomy, Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, and Clinical Surgery.

*For the Third Year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, Clinical Surgery, Ophthalmology, Dermatology, Syphilis, Otology, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Forensic Medicine.

## METHODS OF INSTRUCTION.

The following methods of instruction are adopted in the several departments: —

*Anatomy.* — Lectures; various practical exercises, including abundant dissection, under the direction of the Demonstrator; recitations and demonstrations; histology, and embryology. The histological department has been reorganized, and the laboratories have been placed under

\* Any student who shall have previously passed in the Undergraduate department or Scientific School of Harvard University an examination in General Chemistry (including qualitative analysis) will be exempt from examination in this branch, and may pursue the study of Medical Chemistry during his first year. The latter privilege will be granted to students from other colleges and scientific schools who have received instruction in general chemistry equivalent in character and amount to that of the first year, on passing a satisfactory examination at the September examination, provided that satisfactory evidence of such previous study be sent to the Dean of the Faculty one month before the date of this examination.

the charge of special instructors. General class instruction in the use of the microscope and in practical histology is offered to the first-year students. Accommodations will be provided for those students who wish to pursue special or advanced courses. Facilities for original work will be duly provided; students wishing to carry out any histological or embryological research will receive all necessary assistance, and special efforts will be made to provide material for original work. Microscopes are provided for those whose means do not permit their purchasing their own instruments.

*Physiology.* — Lectures, recitations, conferences, and practical demonstrations in the Laboratory. To students of the second, third, and fourth classes, opportunities are given for original investigations in the Laboratory.

*Chemistry* is taught mainly by practical work in the Laboratory, the student having his own desk and apparatus. General Chemistry and qualitative analysis are taught during the first year. Besides the laboratory-work, there is a lecture and a recitation every week. In the second year medical chemistry is taught by lectures, recitations, and exercises in the Laboratory.

*Pathological Anatomy* is taught by lectures, recitations, and practical instruction in pathological histology. The collection of the Warren Anatomical Museum is used to illustrate the lectures, and many morbid specimens are shown in a fresh state. Students also receive practical instruction in the method of making autopsies, and are admitted to those made at both hospitals. Special classes in pathological histology, including the diagnosis of tumors, are formed for those who are provided with a microscope. Such students are required to prepare the various objects. The school possesses a number of microscopes for the use of those students whose means will not permit the purchase of an instrument.

*Materia Medica and Therapeutics.* — *Materia Medica* is taught by lectures and recitations with exhibition of medicines and pharmaceutical processes. Besides the large cabinet of *materia medica* in the Museum, a complete collection of officinal drugs and chemicals, and of all the important preparations is placed where it can be seen by the students at all times, and from it sets of samples illustrating each week's lecture will be loaned for study. *Therapeutics*, or the physiological action of drugs and their application to disease, is taught in the third year by lectures, recitations, and hospital exercises.

*The Theory and Practice of Medicine.* — Lectures, recitations, and hospital visits.

*Clinical Medicine.* — Daily instruction is given in this department by hospital visits and other exercises. Students are furnished with cases for personal examination, and are called upon to report them before the class, where they are criticised. These examinations are held both in the wards

and in the amphitheatre. Another exercise, known as the "Clinical Conference," affords an opportunity for more thorough preparation of cases, more time being allowed for their study. The full written report of a case is read by the student who has examined it. It is afterwards criticised by the class, by the Professor of Clinical Medicine, and other teachers in the school. In addition to this, a regular course of supplementary instruction is given in Auscultation and Percussion, and in Laryngoscopy, which affords students an abundant opportunity for acquiring a thoroughly practical knowledge of these methods of exploration.

*Surgery.*—Lectures and recitations. There are also courses on Surgical Anatomy, Minor Surgery, Surgical Histology, Bandaging, and Operative Surgery. In the latter, students of the third and fourth classes are supplied with material for repeating the usual surgical operations.

Instruction in Clinical Surgery is given at the Massachusetts General Hospital and City Hospital, each week throughout the year, as follows:—

One clinical lecture, one clinical conference, two visits in the hospital wards, and two public operating days.

The clinical lecture is given over surgical cases brought into the operating theatre, illustrated by explorations and operations. The surgical conference is held each week, at which second and third year students make a full written report of a surgical case, which is then criticised by their fellow-students and by the Professor. Every candidate for a degree is required to report a clinical case in surgery.

*Obstetrics.*—Lectures and recitations. Students are instructed in the usual operations on the manikin, and are required to take charge of cases of obstetrics in their third year. A course on operative obstetrics, with practical illustrations on the cadaver, is given.

*Diseases of Women.*—Lectures, recitations, and practical instruction at the different dispensaries in the education of the touch. Here also every facility is given the student to become familiar with the different forms of uterine disease. A course in operative gynaecology extending throughout the year at the Free Hospital for Women is open to students of the third and fourth classes. To students of the fourth class and to post-graduates cases are assigned for personal examination; these cases are reported in full at the clinical conference, and are made the subject of discussion by members of the class and the instructor. These students are also called upon to assist at the operations in the operative course.

*Diseases of Children.*—Lectures and clinical instruction.

*Ophthalmology.*—A complete course is delivered upon the diseases of the eye, including clinical instruction and the use of the ophthalmoscope.

*Dermatology* is taught by lectures and clinical illustrations. The special out-patient department at the Massachusetts General Hospital furnishes ample opportunities for illustration.

*Syphilis*. — Recitations and clinical instruction.

*Otology*. — Lectures and clinical instruction.

*Laryngology*. — Lectures and demonstrations.

*Diseases of the Nervous System*. — Lectures and demonstrations.

*Forensic Medicine*. — Lectures and demonstrations.

*Embryology*. — Lectures.

### TEXT-BOOKS.

The following works are recommended as text-books, and for collateral reading and consultation:—

#### ANATOMY.

*Text-Books*.—Gray (10th edition). Quain (9th edition). Wilson. Holden's Manual. Holden's Landmarks. Dwight's Frozen sections of a Child.

*Collateral Reading*.—Harrison Allen's Anatomy. Tillaux, *Anatomic Topographique*. Dwight's Anatomy of the Head. Holden's Osteology. Humphrey's Human Skeleton. Morris, on the Joints. Frey's Histology. Klein's Atlas of Histology. Foster and Balfour's Embryology. Satterthwaite's Histology.

#### PHYSIOLOGY.

*Text-Books*.—Dalton's Human Physiology. Foster's Text-book of Physiology. Huxley's Elementary Lessons in Physiology. Martin, the Human Body.

*Collateral Reading*.—Pavy on Food and Dietetics. Fick, *Compendium der Physiologie*. Sanderson's Hand-book for the Physiological Laboratory. Carpenter's Principles of Human Physiology. Gamgee's Physiological Chemistry of the Animal Body.

#### GENERAL CHEMISTRY.

*Text-Books*.—Bloxam's Chemistry, Inorganic and Organic. Clowes's Elementary Treatise on Practical and Qualitative Inorganic Analysis.

*Collateral Reading*.—Roscoe and Schorlemmer's Treatise on Chemistry.

#### MEDICAL CHEMISTRY.

*Text-Books*.—Neubauer and Vogel, Analysis of the Urine. Hofmann and Ultzmann, Analysis of the Urine. Reese's Manual of Toxicology.

*Collateral Reading*.—Kingzett, Animal Chemistry. Gorup-Besanez, *Physiologische Chemie*. Taylor on Poisons. Tardieu, *Étude médico-légale et clinique sur l'Empoisonnement*.

#### MATERIA MEDICA.

*Text-Books*.—United States Dispensatory.

*Collateral Reading*.—United States Pharmacopoeia. National Dispensatory. Bentley and Trimmen's Medicinal Plants.

## PATHOLOGICAL ANATOMY.

*Text-Books.* — Ziegler's General Pathological Anatomy. Orth's Compend of Diagnosis in Pathological Anatomy.

*Collateral Reading.* — Cornil and Ranvier's Pathological Histology. Coats's Manual of Pathology.

## THERAPEUTICS.

*Text-Books.* — H. C. Wood's Therapeutics. Mann's Prescription Writing. Chamber's Manual of Diet.

*Collateral Reading.* — Stillé's Therapeutics and Materia Medica. Bartholow's Materia Medica and Therapeutics. Ringer's Therapeutics.

## OBSTETRICS.

*Text-Books.* — Lusk's Manual of Midwifery.

*Collateral Reading.* — Schroeder's Manual of Midwifery. Cazeaux's Midwifery. Winckel's Diseases of Childbed. Barker's Puerperal Diseases, Barnes's Obstetric Operations.

## THEORY AND PRACTICE.

*Text-Books.* — Flint's Practice of Medicine.

*Collateral Reading.* — Jaccoud, *Traité de Pathologie Interne*. Flint's Clinical Medicine. Niemeyer's Text-book of Practical Medicine. Cutler and Garland's Percussion Outlines. Ziemssen's Cyclopaedia of the Practice of Medicine.

## SURGERY.

*Text-Books.* — Bryant's Practice of Surgery. Billroth's Surgical Pathology. Smith's Operative Surgery.

*Collateral Reading.* — Holmes's System of Surgery. The International Encyclopedia of Surgery. Van Buren and Keyes's Genito-urinary Organs and Syphilis. Guérin, *Éléments de Chirurgie Opératoire*.

## GYNAECOLOGY.

*Text-Books.* — Thomas on the Diseases of Women. Fifth Edition.

*Collateral Reading.* — Emmet's Principles and Practice of Gynaecology. Klob's Pathological Anatomy of the Female Sexual Organs. Savage, The Surgery, Surgical Pathology, and Surgical Anatomy of the Female Pelvic Organs.

The following tabular view will illustrate the distribution of studies throughout the year.

1883-84, FROM SEPTEMBER 27 TO JUNE 25.

First Class.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	{Histology.}	Laboratory.	Laboratory.	{Histology.}	Chemistry, R.	
10		Laboratory.	Embryology, March-June.		*Anatomy, R.	Physiology, R.
11	Physiology, L. or Conf.	Chem., L. or R. first 10 weeks.	Physiology, L.	Chemistry, L.	Physiology, L.	Laboratory.
12	Anatomy, I.	Anatomy, L.	Anatomy, L.	Laboratory.	Laboratory.	Museum.
2	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	
3	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	
4	Pract. Anat., Jan. till May.	Pract. Anat., Jan. till May.	Pract. Anat., Jan. till May.	Pract. Anat., Jan. till May.	Pract. Anat., Jan. till May.	

\* In sections.

Second Class.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Clin. Med., B. C. H.	B. C. H. Med. Visit. Boston Disp.	M. G. H. Clin. Med. L. after Oct.	M. G. H. Med. Visit.	Boston Disp.	Clin. Med., L.
10	*Laryngo'py. 10.30 M. G. H. Clin. Sur. after Dec.	B. C. H. Clin. Surg. Oct. till Jan. Surg. Visit, Jan. till April. *Laryngo'py.	*Laryngo'py.	*Laryngo'py. 10.30 M. G. H. Sur. Conf. after Oct.	B. C. H. Surg. Visit. *Laryngo'py.	M. G. H. Surg. Visit. *Laryngo'py.
11	*Auscultation	*Auscultation	*Auscultation	*Auscultation	*Auscultation	M. G. H. Op.
12		Materia Med.			Path. Anat. L.	Museum.
2	Chemistry, L.	Path. Histol.	Chemistry, R.	Top. Anat.	Path. Histol.	
3	Path. Anat. R.	Laboratory.	Path. Anat. L.	Path. Anat. R.	Laboratory.	
4	Pract. Anat., till May.	Surgery, R. Pract. Anat., till May.	Pract. Anat., till May.	Pract. Anat., till May.	Clin. Conf. Pract. Anat., till May.	

At five o'clock, practical exercises in anatomy, in which all classes may take part, will be conducted by the Demonstrator.

\* Till February in sections.

## Third Class.

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Clin. Med. B. C. H. Eye and Ear Inf.	B. C. H. Med. Visit, in Oct. Boston Disp.	M. G. H. Clin. Med., L., after Oct.	Otol. L., in Nov. Clin. Otol. E. and E. Inf., Dec., Jan., & Feb. M. G. H. Med. Visit.	B. C. H. Ophthal., Otol. L. in Dec. Clin. Otolary, B. C. H. Jan., Feb., Mar.	M. G. H. Clin. Med., L. Dis. of Nerv. System, after Jan.
10	10.30 Surg. L. till Jan. M.G.H. Sur. Clin. after Dec.	B. C. H. Clin. Surg., Oct. till Jan. Surg. Visit, Jan. till Apr.	Clin. Dermatology.	10.30 M. G. H. Surg. Conf., after Oct.	B. C. H. Surg. Visit. Boston Disp.	M. G. H. Surg. Visit.
11		Dis. of Nerv. Sys., till Feb. Mental Dis., after Feb.	*Gynaecology till April. Diseases of Children, Nov. till May.		B. C. H. Op. Diseases of Children.	M. G. H. Op. *Gynaecol., till April.
12	Obstetrics, L. Oct., Nov., Dec., Apr., May, June. Obstetrics, R. Jan., Feb., March.	For. Med., till Feb. Surg. Anat., Mar. & Apr.	Bandaging, Jan. and Feb.	Surgery, L.	Syph., till Feb. Surg. Anat., Mar. & Apr.	Museum.
2	Gynaecol., L.			† Ophthal., L.		
3	Theo. & Prac., L.	† Ophthalmol- ogy, L.	Obstetrics, R., Oct., Nov., Dec., Apr., May, June. Obstetrics, L., Jan., Feb., Mar.	Theo. & Prac., L.	Obstetrics, L.	Mental Diseases. Clinic, after Apr. 15.
4	Therapeutics, L.	Dermatology, L.	Therapeutics, L.	Therapeutics, R.	Clinical Conf.	
5		Theo. & Prac., R.			Theo. & Prac., R.	

Due notice will be given of the times of the operative courses in Surgery and Obstetrics, which are not to interfere with any of the other regular courses of instruction.

The Annual Examinations begin June 9; all conflicting exercises then cease.

\* At the Boston Dispensary or Free Hospital for Women, in sections.

† During first half year.



## Fourth Class.\*

	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Ophthal., B.C.H., C & D Oct. Nov. Dec. A & B Ap. May, Jun. Otol., E. & E. Inf., A & B, Dec. Jan. Feb. B.C.H., C & D, Jan. Feb. Mar.	Dis. of Nerv. Sys., B.C.H. C & D till Feb. Laryngology, Feb. & Mar.	Ophthal., B.C.H., C & D Oct. Nov. Dec. A & B Ap. May, Jun. Otol., E. & E. Inf., A & B, Dec. Jan. Feb. B.C.H., C & D, Jan. Feb. Mar.	Dis. of Nerv. Sys., B.C.H. C & D till Feb. Laryngology, Feb. & Mar.	Laryngology, Feb. & Mar.	Clin. Med., Bost. Disp.
10	Dis. of Chil., A & B till Feb. C & D after Jan.	Dermatol., A & B till Feb. C & D after Jan.	Dermatol., A & B till Feb. C & D after Jan.	Dis. of Chil., A & B till Feb. C & D after Jan.	Dermatol., A & B till Feb. C & D after Jan.	Dis. of Chil., A & B till Feb. C & D after Jan.
11	Gynaecology, † B till Feb., † D after Jan. Clin. Obstet., C Oct., Nov., Dec. A Apr., May, June.	Dis. of Nerv. Sys., M. G. H. A & B after Jan. Ophthal., M. G. H. A & B Ap. May C & D Feb. Mar.	Gynaecology, C & D till Feb. A & B after Feb. † A till Feb. † C after Jan.	Dis. of Nerv. Sys., M. G. H. A & B after Jan. Ophthal., M. G. H. A & B Ap. May C & D Feb. Mar.	Gynaecology, † A or B till Feb. † C or D after Jan. Clin. Obst., D Oct., Nov., Dec. B Apr. May, June.	Gynaecol., C & D till Feb. A & B after Jan.
11.30	Syphilis, A till Feb. C after Jan.		Syphilis, B till Feb. D after Feb.			
12					Clin. Sur., M. G. H.	
2	Gynaecol., L.			† Ophthal., L.		
3		† Ophthal., L.		Gynaecol. Conf.	Clin. Med., B. C. H.	Mental Dis. Clinic.
4	Orthop. Sur., Oct. Nov. Dec.	Dermatology, L.	Ovar. Tumors, Jan. & Feb. Orthop. Sur., Oct. Nov. Dec.	Gynae., Free Hosp. C & D till Feb. A & B aft. Jan.	Foren. Med., B. C. H.	

Due notice will be given of the course in Operative Surgery and Gynaecology.

\* Divided into Sections A, B, C, D.

† The clinical exercises in Gynaecology for A and B till Feb. and for C and D after Jan. are at the Dispensary for Women in Staniford St.

‡ During first half year.

## INSTRUCTION FOR 1883-84 TO STUDENTS OF THE THREE YEARS' COURSE.

### Anatomy.

Descriptive Anatomy. *Four times a week.* Professor DWIGHT.

Practical Anatomy, with Exercises in Dissection. *Eight hours daily from November till May.* Demonstrations and Recitations. Drs. RICHARDSON, OTIS, and MIXTER.

Topographical and Advanced Anatomy. *Once a week.* Professor DWIGHT.

Laboratory Exercises in Histology. *Twice a week.* Drs. QUINCY and C. S. MINOT.

Embryology. *Fifteen lectures.* Dr. C. S. MINOT.

### Physiology.

Systematic and Experimental Physiology. *Four times a week.* Professor BOWDITCH.

Laboratory Exercises in Experimental Physiology. Dr. J. W. WARREN.

### Chemistry.

General and Analytical Chemistry. *Twice a week, with an additional weekly exercise during the first ten weeks.* Dr. HILLS.

Medical and Toxicological Chemistry. *Twice a week.* Professor WOOD.  
Practical Exercises in the Laboratory in General and Medical Chemistry. *Daily.* Professor WOOD and Drs. HILLS, EMERSON and HARRINGTON.

### Materia Medica and Therapeutics.

Materia Medica, with the Exhibition of Drugs. *Once a week.* Dr. BOLLES.

Therapeutics. *Three times a week.* Professor EDES.

### Pathology and Pathological Anatomy.

General Pathology and Pathological Anatomy. *Twice a week.* Professor FITZ.

Special Pathological Anatomy, with Demonstrations. *Twice a week.* Professor FITZ.

Laboratory Exercises in Pathological Histology. *Twice a week.* Drs. WHITNEY and GANNETT.

Practical Instruction in Performing Autopsies. *Throughout the year.* Professor FITZ and Dr. GANNETT.

### Surgery.

Surgery. *Once a week.* Professor CHEEVER.

Surgical Pathology. *Once a week till January.* Assistant Professor WARREN.

Clinical Surgery. *Once a week till January.* Professor CHEEVER.  
*Once a week from January till March.* Assistant Professor PORTER.  
*Once a week from March till June.* Assistant Professor WARREN.

Surgical Conference. *Once a week from November till May.* Assistant Professor PORTER.

Operative Surgery. *Fifteen practical exercises.* Assistant Professor PORTER and Dr. OTIS.

Recitations in Surgery and Surgical Pathology. *Once a week.* Assistant Professor WARREN.

Surgical Anatomy and Operative Surgery. *Twice a week in March and April.* Assistant Professor PORTER.

Application of Bandages and Apparatus. *Twelve practical exercises.* Assistant Professor WARREN and Dr. BRADFORD.

Surgical visits are made at the Massachusetts General Hospital by Professor BIGELOW, Assistant Professors PORTER and WARREN, and Drs. HODGES, BEACH and HOMANS. — At the City Hospital, by Professor CHEEVER and Drs. HOMANS, THORNDIKE, INGALLS, FIFIELD, and GAY. — The Surgical Cases at the Eye and Ear Infirmary and at the Boston Dispensary are shown by the surgeons in charge.

### Ophthalmology.

Diseases of the Eye. *Twice a week during the first half-year.* Professor WILLIAMS.

Clinical Ophthalmology. *Once a week till January, and after March.* Professor WILLIAMS.

### Dermatology.

Diseases of the Skin. *Once a week.* Professor WHITE.

Clinical Dermatology. *Once a week.* Professor WHITE.

### Syphilis.

Practical Diagnosis and Treatment of Syphilis. *Once a week for a half-year.* Dr. POST.

### Otology.

Anatomy and Physiology of the Ear. *Once a week in November.* Dr. BLAKE.

Otосcopy and Pathology of the Ear. *Once a week in December.* Dr. GREEN.

Clinical Otology. *Once a week from November till April.* Drs. GREEN and BLAKE.

### Special Pathology and Therapeutics.

Theory and Practice of Physic. *Twice a week.* Professor MINOT.  
*Twice a week.* Dr. WHITTIER.

Clinical Medicine. *Four times a week.* Professors MINOT and EDES.

Practical Instruction in Auscultation and Percussion. *Five times a week during the first half-year.* Drs. MASON, SHATTUCK, and GARLAND.

Practical Diagnosis and Treatment of Diseases of the Larynx. *Six times a week, first half-year.* Assistant Professor KNIGHT.

Practical Diagnosis and Treatment of Diseases of Children. *Once a week, first half-year.* Dr. OLIVER. — *Once a week for six months, and one lecture weekly during the second half-year.* Dr. ROTCH.

Practical Diagnosis and Treatment of Diseases of the Nervous System. *Once a week till February.* Dr. WEBBER. — *Once a week after January.* Dr. PUTNAM.

Mental Diseases. *Once a week after February.* Assistant Professor FOLSOM.

Forensic Medicine, with Demonstrations. *Twelve exercises.* Dr. DRAPER.

Medical visits are made at the Massachusetts General Hospital by Professors ELLIS and MINOT and by Drs. SHATTUCK, ABBOT, SHAW, and TARBELL. — At the City Hospital, by Professor EDES and Drs. BLAKE, LYMAN, STEDMAN, DRAPER, DOE, MASON, SUMNER, and G. B. SHATTUCK. — At the Danvers Asylum for the Insane. — The Medical Cases at the Boston Dispensary are shown by the physicians in charge.

### Obstetrics.

Theory and Practice of Obstetrics. *Twice a week.* Professor REYNOLDS. *Once a week.* Assistant Professor RICHARDSON.

Operative Obstetrics. *Twelve practical exercises.* Assistant Professor RICHARDSON.

Practical Instruction in Clinical Obstetrics. *Throughout the year.* Assistant Professor RICHARDSON.

### Gynaecology.

*Twice a week.* Assistant Professor BAKER. Two clinics each week during the second half-year. Assistant Professor BAKER. Two clinics each week during the first half-year. Dr. DAVENPORT.

## INSTRUCTION FOR 1883-84 TO STUDENTS OF THE FOURTH YEAR.

### Clinical Medicine.

*Once a week.* Dr. DRAPER.

*Once a week.* Dr. GARLAND.

### Surgery.

Clinical Surgery. *Once a week.* Assistant Professors PORTER and WARREN.

Operative Surgery. *Practical Exercises.* Assistant Professor PORTER and Drs. M. H. RICHARDSON, OTIS and MIXTER.

Orthopedic Surgery. *Twice a week for three months.* Dr. BRADFORD.

### Obstetrics.

Clinical Obstetrics. *Twice a week for six months.* Operative Obstetrics. *Practical Exercises.* Assistant Professor W. L. RICHARDSON.

### Ophthalmology.

Clinical Exercises. *Twice a week for six months.* Professor WILLIAMS.

Ophthalmoscopy. *Twice a week for four months.* Dr. WADSWORTH.

### Dermatology.

Clinical Exercises. *Three times a week.* Lectures. *Once a week.* Professor WHITE.

### Gynaecology.

Clinical Instruction and Operative Gynaecology. *Six hours a week.* Assistant Professor BAKER and Dr. DAVENPORT.

Clinical Instruction and Twelve Introductory Lectures. Dr. CHADWICK.

### Diseases of Children.

Clinical Exercises. *Three times a week.* Drs. OLIVER and ROTCH.

### Diseases of the Nervous System.

Clinical Exercises. *Twice a week.* Drs. WEBBER and PUTNAM.

### Mental Diseases.

Clinical Exercises. *Once a week.* Assistant Professor FOLSOM.

### Laryngology.

Clinical Exercises. *Three times a week for two months.* Assistant Professor KNIGHT.

### Otology.

Clinical Instruction, Lectures, and Demonstrations, including Instruction in making Sections and Preparations. *Twice a week for three months.* Dr. BLAKE. *Twice a week for three months.* Dr. GREEN.

### Forensic Medicine.

Lectures and Demonstrations. *Once a week.* Dr. DRAPER.

Demonstrations. Dr. HARRIS.

### Syphilis.

Clinical Exercises. *Two hours a week.* Dr. GREENOUGH.

### Ovarian Tumors.

Practical Diagnosis and Treatment. Six Introductory Lectures and occasional Clinical Exercises. Dr. HOMANS.

### Cookery.

Practical Instruction in preparing Food for Infants and Invalids. Six Exercises.

## CLINICAL ADVANTAGES.

The Medical Department of the University is established in Boston, in order to secure those advantages for Clinical Instruction and for the study of Practical Anatomy which are found only in large cities.

There are Hospital visits or operations daily.

*The Massachusetts General Hospital.*—During the past year, 2,302 patients were treated in the wards, and 16,304 in the out-patient departments, the building of which has just been greatly enlarged, and affords increased facilities for the reception and treatment of patients. Patients are received from all parts of the United States and the Provinces, and are visited by the students on four days in the week with the attending physicians and surgeons. The opportunities for becoming acquainted with general surgery are very great. Operations are numerous, and are performed in the amphitheatre, which is provided with seats for 400 persons. Clinics in the following special branches have been established in connection with the out-patient department. Dermatology, Laryngology, Diseases of the Nervous System, and Ophthalmology.

*The City Hospital.*—During the past year, 4,702 cases were treated in its wards, and 12,174 in its various out-patient departments. The Medical wards always contain many cases of acute diseases, and changes are taking place constantly. The opportunities for seeing fractures, injuries, and traumatic cases of all kinds are excellent, since, on an average, 800 street accidents are yearly treated. Surgical operations are performed in the amphitheatre. These include general surgical and also ophthalmic operations. Diseases of the eye, the ear, and the skin are largely treated in the out-patient department. Clinical instruction is given by the physicians and surgeons twice a week.

In these two hospitals, the facilities for witnessing Operative Surgery are unsurpassed. Twice a week operations are performed in the presence of the class. The number of these operations is large, reaching nearly two thousand a year. The variety is great, embracing every surgical disease and injury, including the surgical operations on the eye and ear.

*The Massachusetts Charitable Eye and Ear Infirmary.*—The nine thousand patients annually treated at this institution present every variety of disease of the ear and eye, and supply a large number of operations.

*The Marine Hospital at Chelsea* receives from the shipping of the port a large number of patients, who furnish examples of the diseases of foreign countries and of distant parts of the United States. Many cases of venereal disease in its various forms, are treated annually.

*The Boston Dispensary.* — 27,297 patients were treated at this Public Charity during the past year. Students have excellent opportunities to see minor surgery, and many of the diseases of children, and to practise auscultation. A new building has just been erected at a cost of \$50,000, where students will have ample and excellent opportunity for seeing practical work in the diagnosis and treatment of cases illustrating the various specialties of medicine and surgery.

*The Free Hospital for Women.* — In the wards of this institution, which is devoted exclusively to the diseases peculiar to women, abundant opportunity is offered to study the severer forms of uterine disease and to witness operations, which are performed once a week throughout the year.

There are twenty-five appointments annually for Internes in the various hospitals, and as many more for Assistants in the out-patient departments. Appointments for the Massachusetts General and City Hospitals are for the term of eighteen months, for the Boston Lying-in Hospital for four months, and for the Free Hospital for Women for nine months.

Students are also permitted to visit the Children's Hospital and the Carney Hospital on application to the physicians on duty.

### EXAMINATIONS.

The regular examinations are conducted in writing and are held at the end of each year in June, and a week before the opening of the School in September, on the studies of the preceding year.\* They are held in the following order:—

*At the End of the First Year.* — Anatomy, Physiology, and General Chemistry. †

*End of Second Year.* — Topographical Anatomy, Medical Chemistry, Materia Medica, and Pathological Anatomy.

*End of Third Year.* — Therapeutics, Obstetrics, ‡ Theory and Practice of Medicine, Surgery. †

*End of Fourth Year.* — Ophthalmology, Otology, Dermatology, Syphilis, Laryngology, Mental Diseases, Diseases of the Nervous System, Diseases of Women, Diseases of Children, Clinical and Operative Obstetrics, Clinical Medicine, Clinical and Operative Surgery, Forensic Medicine.

\* The June examination is for those only who are members of the School at the time, and for those entitled to apply for the degree.

† See foot-note on page 14.

‡ The examinations in Obstetrics and Surgery may be passed at the end of the fourth year if preferred.

In addition to the above written examinations each student is required to present a written report of the analysis of a solution containing inorganic substances, and of a specimen of urine, to examine and report upon a clinical case in Surgery, and to take charge of and report upon two cases in Obstetrics; each student must also have satisfactorily dissected the three parts of the body.

Students attending the four years' course may be examined at the end of the third or fourth year, as preferred, in Clinical Medicine, Clinical Surgery, and Obstetrics. The examinations of the first two years are common to both groups of students. The final examinations at the close of the three years' course are in the following subjects: Therapeutics, Obstetrics, Surgery and Clinical Surgery, Theory and Practice, and Clinical Medicine.

No student is allowed to anticipate the examinations in the regular course of studies of his year, except by special permission of the Faculty. Those who fail in any subject may present themselves in that subject again, at the next regular examination.

*All students are required to notify the Secretary in writing of their intention to present themselves for examination, either in June or September, one month before such examination is to be held.*

The regular examinations for the year 1883-84 will begin June 9 and September 22.

The following was the order of the examinations held in June, 1883:—

*Monday* (June 11), Therapeutics, Ophthalmology, Otology, Laryngology, and Venereal Diseases; *Tuesday*, Obstetrics, Clinical and Operative Obstetrics, and Mental Diseases; *Wednesday*, Surgery, Clinical Surgery, Operative Surgery, and Dermatology; *Thursday*, Clinical Medicine, Diseases of Children, and Gynaecology; *Friday*, Theory and Practice, Diseases of the Nervous System, and Forensic Medicine; *Saturday*, Topographical Anatomy; *Monday* (June 18), Pathological Anatomy; *Tuesday*, Medical Chemistry; *Wednesday*, Materia Medica; *Thursday*, Anatomy; *Friday*, Physiology; *Saturday*, General Chemistry.

### DIVISION OF STUDENTS.

Students are divided into four classes, according to their time of study and proficiency, and during their last year will receive largely increased opportunities of instruction in the special branches mentioned. Students following the three years' course are classified as heretofore, and the instruction in the special branches is of the same character as that which has been given for several years. Students who began their professional studies elsewhere may be admitted to advanced standing; but all persons who apply for admission to the advanced classes must pass an examina-



tion in the branches already pursued by the class to which they seek admission, and furnish a satisfactory \* certificate of time spent in medical studies. No student may advance with his class, or be admitted to advanced standing, until he has passed the required examinations in the studies of the previous year, or a majority of them; nor may he become a member of the third class, until he has passed all the examinations of the first, in addition to a majority of those of the second year.

*In order that the time of study shall count as a full year, students of all classes must present themselves within the first week of the School year and register their names with the Secretary.*

Students who do not intend to offer themselves for a degree will, however, be received for any portion of the course.

Any student may obtain a certificate of his period of connection with the School.

### LIBRARIES.

The library at the Medical College is open to students, on the deposit of five dollars, to be refunded after all books are returned.

The College Library at Cambridge is open to the students of the Medical School.

The Boston Public Library, which contains a large collection of Medical books, is open to students who are inhabitants of Boston. Students, not inhabitants of Boston, who have filed a bond at the Treasurer's office, or deposited with the Treasurer the sum of fifty dollars, may also use this library.

### REQUIREMENTS FOR THE DEGREE.

Every candidate must be twenty-one years of age, and of good moral character; must give evidence of having studied medicine three or four full years; have spent at least one continuous year at this School; have presented a satisfactory thesis; and have passed the required examinations.

The course of study recommended by the Faculty covers four years; but, until further notice, the Degree of Doctor of Medicine will be given as heretofore, upon the completion of three years of study, to applicants who have passed satisfactorily the above requirements.

The degree of Doctor of Medicine *cum laude* will be given to candidates who have pursued a complete four years' course, and obtained an average of seventy-five per cent upon all the examinations above stated. A certificate of attendance on the studies of the fourth year will be given to such graduates as have attended the course, and have passed a satisfactory examination in the studies of the same.

\* Certificates from teachers who practise any peculiar or exclusive system of medicine are not accepted.

Theses of conspicuous merit are mentioned with honor, or read at the University Commencement.

The degree of Master of Arts is open to graduates of the School who are also Bachelors of Arts of Harvard College, and to Bachelors of Arts of other Colleges who shall be recommended by the Faculty of Harvard College. Candidates must pursue an approved course of study in Medicine for at least one year after taking the degree of Doctor of Medicine. Students who have taken the four years' course, and have passed the examinations "with high credit," may obtain the degree of Master of Arts by presenting their applications to the Faculty on or before the first of June in the year of their final examinations.

### BOYLSTON MEDICAL SOCIETY.

This Society, composed of medical students, meets at stated intervals for the discussion of medical topics, and is presided over by a physician selected by the members. Prizes, in money, or books, are awarded annually to the writers of essays judged worthy of such distinction by a committee of physicians selected for that purpose by the Society.

### ANATOMICAL PRIZE.

Assistant Professor C. B. PORTER offers a prize of fifty dollars, open to all students, and graduates of not more than five years' standing, except teachers of anatomy, for the best dissection deserving the award illustrative of surgical anatomy, the specimen to be presented to the Museum.

### PECUNIARY AID.

Four yearly scholarships have been established by the Faculty of the value of \$200 each, open to meritorious students who have been at the School for at least one year. The Barringer scholarships, of the value of \$300 and \$200 respectively, will be awarded to deserving students, preferably those of the fourth class. Only those needing assistance are expected to apply; and from such, those holding the highest rank will have the preference.

Two assistants in the Chemical Laboratory are appointed annually from such deserving students as need aid. Students holding this position are exempt from the payment of the fee for tuition during their term of service.

### FEES AND EXPENSES.

For matriculation, five dollars; for a year, two hundred dollars, (if in two payments, at the first, one hundred and twenty dollars; at the second, eighty dollars); for a half-year alone, one hundred and twenty dollars;

for graduation, thirty dollars. Of students who do not pay in advance, a bond for \$300, executed by two sufficient bondsmen, one of whom must be a citizen of the United States, is required. A copy of such bond will be sent, on application to the Secretary of the Faculty, and all students are recommended to deposit such a bond. To students depositing these bonds, term-bills will be presented one week before the end of the first term, to be paid within two weeks; and also one week or more before Commencement, to be paid on or before the beginning of the next academic year. Such students will be held responsible for the payment of fees until they have notified the Dean of their intention to withdraw from the School, and have subsequently received their bond from the Treasurer. No degree can be conferred till all dues to the School are discharged. The student's general expenses may be reduced, in accordance with his means, to the standard which prevails in other cities. The janitor of the Medical College will always have a list of boarding-houses in the vicinity of the College building, varying in their rates of charges from five to ten dollars a week.

#### COURSE OF STUDY FOR GRADUATES.

For the purpose of affording to those who are already graduates in medicine additional facilities for pursuing clinical, laboratory, and other studies, for which they had not previously found leisure, in such subjects as may especially interest them, and as a substitute in part for the opportunities heretofore sought in Europe, the Faculty have established a post-graduate course, of which the following is a programme. The fee in each branch is for a single half-year.

*Histology.* — The various methods of examining the different tissues are employed, and opportunities for original research are offered. Fee, twenty dollars.

*Physiology.* — Opportunities for original investigation in the Physiological Laboratory. Fee, thirty dollars.

*Medical Chemistry.* — Practical instruction in the Chemical Laboratory, in the analysis of the urine and other animal fluids in health and disease, and of poisons; examination of water, of food and milk for the detection of adulteration, and of blood-stains and other objects connected with medico-legal investigations, with the application of the microscope to these processes. General analysis, also, if desired. Laboratory-fee, thirty dollars.

*Pathological Anatomy.* — Practical instruction in Pathological Histology and the examination of specimens in the Microscopical Laboratory; and opportunity for witnessing and making autopsies. Fee, twenty dollars.

*Surgery.* — A practical course of operative surgery, and instruction in the application of bandages and apparatus. Fee, twenty-five dollars.

*Laryngology* is practically taught, and diseases of the larynx demonstrated. Fee, twenty dollars.

*Ophthalmology.* — Clinical instruction, lectures on diseases of the eye, and demonstrations of the methods of performing operations. Exercises in the use of the ophthalmoscope. Fee, twenty-five dollars.

*Otology.* — Lectures and clinical instruction in diseases of the ear. Fee, fifteen dollars.

*Dermatology.* — Clinical instruction in diseases of the skin, illustrated by patients in this department of the Massachusetts General Hospital. Lectures. Fee, twenty-five dollars.

*Syphilis.* — Clinical instruction at the Boston Dispensary. Fee, fifteen dollars.

*Diseases of the Nervous System.* — Lectures and clinical instruction with practical illustrations of the application of various forms of electricity. Lectures. Fee, fifteen dollars.

*Gynaecology.* — Clinical instruction in diseases of women. Fee, twenty-five dollars.

*Obstetrics.* — Cases supplied, and clinical instruction given. A course on operative obstetrics. Fee, twenty-five dollars.


Those pursuing this course may elect the studies to which they will give their attention, and allot the time they will devote to each. They will be exempt, unless at their option, from examinations, and may obtain a certificate of attendance on this course of advanced study. On payment of the full fee for the course, they will have the privilege of attending any of the other exercises of the Medical School, the use of its laboratories and library, and all other rights accorded by the University.

Graduates of other medical schools may obtain the degree of M.D. at this University, after a year's study in the graduates' course. The required examinations are those of the three years' course, and may be passed in such order as is desired, but only at the stated seasons.

The fee for a year is . . . . .	\$200
“ for a half-year . . . . .	\$120

For any of the special courses, such fees as are above specified.

For further information or catalogue, address Dr. H. P. BOWDITCH, Dean, Harvard Medical School, Boston, Mass.

 The Medical School is on Boylston Street, Boston.

## EXAMINATION PAPERS.

(June Examination, 1883.)

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### First Year's Studies.

#### ANATOMY. — Professor DWIGHT.

Describe : —

1. The minute structure of the various kinds of cartilage.
2. The seventh rib and the peculiarities of the first and twelfth.
3. The femur and its ossification.
4. The diaphragm.
5. The pterygoid muscles.
6. The hamstring muscles.
7. The structure of the walls of a middle-sized artery.
8. The superior mesenteric artery and its branches.
9. The internal carotid and its branches.
10. The vena azygos major.
11. The cephalic vein.
12. The thoracic duct.
13. The first division of the fifth pair of cranial nerves.
14. The great sciatic nerve.
15. The cerebellum and its peduncles.
16. The coarse and minute anatomy of the lungs.
17. The mucous membrane of the tongue.
18. Peyer's patches.
19. The glands of the skin.
20. The intrinsic muscles of the larynx.

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#### PHYSIOLOGY. — Professor BOWDITCH.

[Number the answers to the questions without copying the questions themselves. Do not number the pages of the book. Answer the questions in order, writing on each page in succession.]

1. How does the application of heat, as in cooking, affect the digestibility of meat?
2. What is the difference between parotid and submaxillary saliva?
3. What is the function of the pancreas?
4. What is the value of gelatine as food?

5. What is the weight of the blood compared to that of the whole body, and how is this weight determined?
6. What is the action of the vagus nerve upon the heart?
7. How are the vocal cords stretched in phonation?
8. What proof is there of the existence of muscular as distinct from nervous irritability?
9. What evidence is there of the importance of the muscular system in the heat-production of the body?
10. What reason is there for supposing that liver sugar is not wholly formed from glycogen?
11. Why does puncture of the floor of the fourth ventricle stop the respiratory movements?
12. How may the reflex irritability of the spinal cord be diminished?
13. Mention the excreting organs of the body in the order of their importance, and name the principal substances excreted by each.
14. What is the respiratory quotient, and how is it affected by diet?
15. How is the feeling of the presence of an amputated limb to be explained?
16. What is the probable function of the cerebellum?
17. Explain the difference between a mixture of blue and yellow lights (e. g. by a revolving disc) and a mixture of blue and yellow pigments.
18. What is the function of the otolithes?
19. What are the component structures of the umbilical cord?
20. How is the pleuro-peritoneal cavity originally formed?

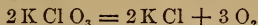
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#### GENERAL CHEMISTRY.—Instructor HILLS.

[In addition to the following questions, a written report of the analysis of a solution containing inorganic substances was required.]

1. Write the reactions by which hydrogen, carbon dioxide, nitrogen monoxide, hydrochloric acid, and sulphuretted hydrogen are usually prepared.
2. From what is iodine obtained? Describe its properties.
3. Uses of arsenic and its compounds.
4. Ores of iron, mercury, lead, tin, and platinum.
5. Properties and uses of copper.
6. Describe two methods for the manufacture of acetic acid.
7. From what is carbolic acid obtained? Describe its properties and uses.
8. Describe the properties and uses of potassic ferrocyanide.
9. Write the analysis of a solution containing arsenic and antimony, explaining carefully each step in the process.
10. How test for phosphoric acid in the presence of arsenic acid? hydrochloric acid in the presence of hydriodic acid?
11. What are isomeric compounds? How is the phenomenon of isomerism explained?

12. What weight and what volume of oxygen can be obtained from 100 grams of potassic chlorate?



K = 39.1, Cl = 35.5, O = 16. One litre hydrogen = 0.0896 grams.

### Second Year's Studies.

#### MEDICAL CHEMISTRY. — Professor WOOD.

[In addition to the following questions, a written report of the analysis of a specimen of urine and of a mixed organic and inorganic poison was required.]

1. Under what conditions do we find the urine, for a long time, increased in amount, pale in color, and of low specific gravity?
2. What inferences can be drawn from a diminished amount of urea?
3. How detect a diminution in the amount of chlorine in the urine?
4. Characteristics of the urine in typhoid fever?
5. Characteristics of the urine when there is a complication of amyloid degeneration of the kidney and chronic parenchymatous nephritis?
6. Character of sediment in acute pyelo-nephritis during the first few days?
7. What inferences can be drawn from urine having the following characteristics? Why?

Color = high. Reaction = acid. Sp. Gr. = 1024. Considerable sediment.

Uph. = n.	$\overset{+}{\text{U}} = +$ .	Cl. = n.	E. P. = n.
Ind. = sl. +.	$\bar{\text{U}} = +$ .	Sf. = n.	A. P. = n.

Albumen = very slight trace. Bile and sugar absent. Sediment = few hyaline casts and excess of mucus.

Total amount of urine	= 500 cub. cent.
" " " urea	= 17.76 grm.
" " " chlorine	= 4.08 "

8. What are the properties, both physical and chemical, of uric acid concretions?
9. Ready tests for oxalic acid, arsenic, tartar emetic, corrosive sublimate, and calomel?
10. Describe a case of opium poisoning.
11. Symptoms of nicotine and tobacco poisoning?
12. Post-mortem appearances in strychnine poisoning?

#### MATERIA MEDICA. — Instructor BOLLES.

I. Define the following classes of preparations. Describe the methods by which they are made, and give their standards of strength: Fluid Extracts; Abstracts; Tinctures; Triturations; Infusions.

II. Give the number of parts of cold water required to dissolve one part of the following: Bromide of Ammonium; Iodoform; Citrate of

Lithium; Bisulphate of Quinine; Corrosive Chloride of Mercury; Acetate of Lead; Sulphate of Magnesium; Red Iodide of Mercury; Tartrate of Antimony and Potassium; Carbolic Acid.

III. Erythroxyton.

IV. Pilocarpus.

V. Rhubarb.

VI. The composition of: Aromatic Spirit of Ammonia; Phosphorated Oil; Mass of Mercury; Elixir of Orange; Compound Powder of Morphine; Compound Tincture of Cinchona; Compound Extract of Colocynth; Saccharated Pepsine; Compound Powder of Rhubarb; Chloroform Liniment.

VII. The peculiar constituents and their percentage of the following: Nutgall; Ignatia; Hydrastis; Calumba; Podophyllum; Cantharis; Glycyrrhiza; Oil of Theobroma; Conium; Physostigma.

VIII. Write a complete model prescription for several ingredients, with directions for use. Analyze it, name its several parts and give a reason for the presence of everything in it.

IX. The adult doses of: Codliver Oil; Chloral; Oil of Turpentine; Asafoetida; Salicylic Acid; Solution of Arsenite of Potassium; Codeine; Hydrochlorate of Apomorphine; Tincture of Aconite; Tincture of Digitalis.

X. Give the officinal names of the Samples.

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#### PATHOLOGICAL ANATOMY. — Professor FITZ.

1. Give the general causes of dropsy.
2. Describe the changes taking place in extravasated blood.
3. Give the main groups into which morbid growths are divided.
4. State briefly the evidence in favor of tuberculosis as an infective disease.
5. Enumerate the affections in connection with which multiple, minute, cutaneous hemorrhages occur.
6. Name the varieties of softening of the brain and give their causes.
7. Describe the appearances of chronic leptomenigitis.
8. Describe the appearances indicative of an acute valvular endocarditis.
9. State the alterations of the heart which may result from a stenosis of the coronary artery.
10. Mention the alterations of the air-passages which may be present in diphtheria.
11. Describe the condition of the lung in extensive chronic pleurisy.
12. Enumerate the causes of enlargement of the spleen.
13. Describe the appearances of the stomach in acute arsenical poisoning terminating fatally within a few hours.
14. Mention the anatomical lesions which may occur in dysentery.
15. Describe the appearances of nutmeg liver and its method of origin.



16. Describe appearances characteristic of a chronic diffuse nephritis.
17. Give the appearances and method of origin of a coagulative necrosis of the kidney.
18. Enumerate the varieties of extra-uterine foetation and state how they are to be distinguished.
19. Describe the appearances of diphtheritic endometritis.
20. Discriminate between hydrocele, haematocele, and sarcocele.

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### TOPOGRAPHICAL ANATOMY. — Professor DWIGHT.

1. Give the relations of the following parts in the back to the spines of the vertebrae or to the ribs: (1) the upper and lower limits of the oesophagus; (2) of the pleurae; (3) of the lungs; (4) of the scapula; (5) the bifurcation of the trachea; (6) the end of the arch of the aorta; its passage through the diaphragm; its bifurcation; (7) the end of the spinal cord and the points of origin of the plexuses.

2. The position and relations of the parotid gland, and the structures within it.

3. Describe a section through the middle of the upper arm. (This may be answered by a diagram with proper explanations.)

4. Describe the structures and their relations in each layer of the anterior femoral region between Poupart's ligament and a transverse line at the apex of Scarpa's triangle, as deep as the floor of the triangle, inclusive.

5. What are the relations of the patella to the bones in the various positions of the knee-joint?

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### Third Year's Studies.

#### THERAPEUTICS. — Professor EDES.

[Say what you mean clearly and *only once*.]

Suppose that you have under your care the family of a gentleman who is not a practising physician, but who is thoroughly educated in physiology and chemistry, insists on having a reason for all you do, and is peculiarly averse to vague and unmeaning phrases.

The following cases occur in his family. Explain as you would to him, the details of and REASONS for your treatment.

1. His wife has puerperal septicaemia, for which you prescribe quinine and alcohol.

2. She is emaciated and dyspeptic and you are obliged to use a nutritious diet, digestives and tonics.

3. You are obliged to relieve her neuralgia by external applications and drugs internally.

4. His daughter, aged twelve, has chorea for which you give arsenic, conium and chloral. On one occasion she gets an overdose of arsenic, and on another of chloral.

5. He himself is much constipated. You have to use a variety of cathartics.

Write out in full three of the prescriptions you would use in any of these cases. Use the metric system.

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OBSTETRICS. — Professor REYNOLDS.

1. In what way is the foetal blood oxygenated?
2. An accoucheur has passed his hand within the uterus for podalic version. What are for him the various points of contrast between foetal hands and foetal feet?
3. Describe the stage of "Expulsion" in presentation of Cranium, of Face, and of Pelvic Extremity.
4. After delivery of the head, the cord is found tightly wound about foetal neck. Treatment?
5. The body of a child has been safely expelled. Both arms have been afterward brought out. The head (not hydrocephalic, or ill shaped; and single) is delayed. There is no pelvic deformity. Careful details of treatment. (Instruments cannot be obtained.)
6. A multipara with well-formed pelvis and normal child has a left lateral variety of placenta praevia. Two fifths of the whole placental mass lie attached within a radius of one inch and a half from the internal os. Describe the resulting symptoms during pregnancy and labor.
7. A multipara with a normal child and fair pelvis has been in hard labor, the cranium presenting. Version was begun, and one foot has been brought to the vulva. The completion of the turning becomes very difficult. Treatment?
8. When no foetal deformity or evident disease exists, what facts in the condition of a child stillborn make the prognosis as to resuscitation especially unfavorable? Describe Insufflation.
9. State the unfavorable conditions that necessarily attend the use of long curved forceps in those cases of high arrest of a head which fairly allow choice between these instruments and version. Admit that there is no obstruction from carcinoma or from any other growth, that there exists no severe pelvic narrowing and that the child is alive.
10. The proper management of the third stage of labor?

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SURGERY. — Professor CHEEVER.

- I. Give the differential diagnosis of fracture of the humerus just above the condyles, and dislocation of the elbow backwards. The treatment of each, and the results to be expected.
- II. What are the cardinal symptoms of inflammation? Explain briefly the pathological changes which produce them.
- III. Under what circumstances would you trephine the skull?
- IV. Erysipelas, its etiology, diagnosis and treatment.

V. Differential diagnosis of a foreign body in the airpassages, or in the oesophagus. Treatment of each. Dangers if untreated.

VI. What are the traumatic infective diseases? Give the modern view of their origin.

VII. How distinguish and how treat irreducible, incarcerated, or strangulated hernia?

VIII. Describe the appearances and sequences of fracture and dislocation of the spine, and caries of the bodies of the vertebrae, in distinction one from the other.

IX. How distinguish a bruised nerve? a cut nerve? a neuroma? Describe treatment of each.

X. What are the distinctive symptoms of fissure of the rectum, stricture of the rectum, or of piles? Give the treatment of each.

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### CLINICAL SURGERY.—Professor CHEEVER.

[In addition to the following questions, the clinical report of a surgical case is required, to be presented on or before June 1.]

[One hour and a half is assigned for answering the following questions.]

CASE I.—A healthy laboring man 30 years of age, given to rather free use of liquor, while intoxicated, fell and sustained fracture of both bones of the right leg, not compound, not comminuted. The tibia was broken  $2\frac{1}{2}$  in. above ankle, and the fibula 2 in. higher. Seven hours after injury he entered the hospital. The parts looked bruised, as though he had tried to walk after the receipt of injury. The foot and leg were much swollen, skin tense at seat of fracture from extravasation of blood. Several large blebs on surface of leg, great ecchymosis, no pulsation in arteries of foot.

- a. What treatment would you advise?
- b. State the indications for such treatment.
- c. Give prognosis.
- d. How would his habits influence your treatment and prognosis?

CASE II.—F. M., a healthy man 30 years of age, teamster, a year ago while mounting his team, slipped, and fell astride the wheel, striking upon the scrotum. A few hours afterwards his scrotum was as large as a small cocoonut, tense and black. Now, a year after, the enlargement is confined to left side, size of large orange, pear shaped, tense, elastic, non-translucent, not painful except on deep pressure, cord not involved, no impulse on coughing.

- a. Give diagnosis of elimination.
- b. State treatment.
- c. Prognosis.

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### THEORY AND PRACTICE.—Professor MINOT.

1. Pulmonary Emphysema: varieties; causes; effects; diagnosis.
2. Aneurism of the Aorta: varieties; most frequent location.
3. Intestinal Obstruction: varieties; causes; diagnosis; treatment.
4. Tubercular Meningitis: symptoms; diagnosis.

5. Symptoms and diagnosis of Cholera Infantum; treatment, and the reasons for the special treatment advised.
6. At what ages do the different groups of the first teeth develop; and at what age does the anterior fontanel usually close?
7. Bright's Disease: varieties; diagnosis, and differential diagnosis; prognosis; treatment.
8. Chorea: its symptoms; causes; treatment.

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### CLINICAL MEDICINE. — Professors MINOT and EDES.

[Give the differential diagnosis, the prognosis, and the treatment of as many of these cases as the time will allow, discussing them in the order in which they are arranged. Assume that symptoms not mentioned are wanting; but as omissions, intentional or not, may occur, state them, if essential. Success will depend more upon the quality than the quantity of the work. The intelligent discussion of the cases will have more weight than a hasty and inconclusive though correct diagnosis.]

CASE 1. — A man, 50 years old, has been a hard drinker, except during the past year. No family history obtained. For two or three years he has had pain after taking food, occasionally vomiting, and progressive loss of flesh and strength. During the past eight or ten weeks he has complained of frequent and severe pain, of a "stretching" character, in the right hypochondrium, but without much tenderness there. For the last two weeks he has been deeply jaundiced. He has been confined to bed for a week, and is much emaciated and prostrated. His nights are much disturbed by pain. The liver is greatly enlarged, hard, irregular and nodulated, the lower part reaching to the anterior spine of the ilium; it also extends to the left of the median line about two inches. It is slightly tender. There is little or no ascites. Pulse, 92. Temp., 98.5°. Urine rather scanty, and very dark. No itching of skin.

CASE 2. — A lady aet. 40 has a "cold" for some days; then becomes rapidly worse, with chilly feelings but no distinct rigor, pain in the right side, increased cough with thick greenish expectoration. The pulse is rapid (120) and the temperature from 102° to 103°, tongue dry. After a few days dulness is found in the upper part of the right chest, back and front, with bronchial breathing and subcrepitant râles. Somewhat later the whole right back becomes dull and bronchial breathing is heard over the upper two thirds. There is some subcrepitus. The expectoration is at no time bloody.

As she convalesces the dulness disappears slowly from above downward, outlasting the bronchial breathing by some weeks.

CASE 3. — A married woman, 45 years old, has complained for three years of shortness of breath on exertion, and for one year of swelling of the abdomen and legs, which now confine her to bed. She has never had rheumatism. The urine is scanty and high-colored. She has no cough nor expectoration. There is prostration, cyanosis of the face, a moderate amount of ascites, and oedema of the legs. Breathing rapid. Pulse 108, very small and irregular. Considerable emaciation. The area of cardiac dulness is increased vertically. An inch outside and below the left nipple there is a rough murmur during the ventricular diastole, terminating with a loud first sound. At the same place a thrill is perceptible to the finger during the diastole. There is no systolic mitral murmur, and no aortic murmur. No râles heard in chest.

CASE 4. — A woman aet. between 25 and 30, has been in an insane asylum some years ago. She has had bloody discharges from nose, stomach and intestines.

At intervals corresponding to the menstrual periods she has had attacks of partial unconsciousness and loss of memory, lasting a week more or less with varying severity.

During the last few weeks she has not been so clear in her mind as usual in the periods between the attacks.

On entering the hospital she has a confused and startled air, answers questions either not at all, or briefly and not to the purpose.

There are no febrile symptoms and the urine is normal.

A few days afterwards she becomes completely hemiplegic upon the right side, and has lost sensation to touch and pain upon that side up to the median line. She can neither taste, smell, hear nor see (except very imperfectly) upon the right side. There is no strabismus, diplopia or paralysis of ocular muscles.

The muscles react perfectly well to faradic electricity.

Her intelligence is greater than at the time of her entrance, but not perfect. She complains of nothing.

#### Fourth Year's Studies.

##### OPERATIVE SURGERY. — Assistant Professor PORTER.

1. Describe the operation for ligature of common Carotid Artery.
2. Describe the operation for ligature of Posterior Tibial, high.
3. Describe the operation for Exsection of Lower Jaw.
4. Describe the operation for Chopart's amputation. Which tarsal bones are removed and which left in the stump.
5. Describe the operation of Lithotomy. What precautions should be taken?

##### CLINICAL AND OPERATIVE OBSTETRICS.

##### Assistant Professor RICHARDSON.

1. Temperature, strength (carbolic acid), and amount of an intrauterine injection?
2. Treatment of a fissure at the base of the nipple?
3. How soon after delivery is the process of involution of the uterus completed?
4. How soon after delivery does menstruation usually occur?
5. In introducing the decapitating hook should the point be up or down?
6. What is the objection to the operation of symphyseotomy?
7. If operative interference is called for in a case of slight narrowing of the antero-posterior diameter of the brim, the presentation being a vertex, the os fully dilated and the membranes unruptured, what operation is indicated?
8. A primipara has been in labor eighteen hours and begins to show

signs of exhaustion. The presentation is a face, with the head  $\frac{3}{4}$  extended; the brow is in the left anterior part of the pelvis and about at the middle plane. The os is fully dilated. The membranes are ruptured. The child is alive. Flexion is impossible. Treatment?

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OPHTHALMOLOGY. — Professor WILLIAMS.

1. What are the symptoms, prognosis, and treatment of rheumatic iritis?
  2. What are the symptoms and pathological changes found in amaurosis?
  3. What structural lesions are often found in myopic eyes?
  4. How may tobacco affect the eyes?
  5. What are the symptoms of paralysis of the motor nerves of the eye-ball?
- 

DERMATOLOGY. — Professor WHITE.

1. Anatomy of the sebaceous glands.
  2. Applicability of the term *multiforme* to erythema?
  3. Give the appropriate treatment for the principal varieties of eczema.
  4. What are the causes of alopecia?
  5. Give a description of scabies.
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GYNAECOLOGY. — Assistant Professor BAKER.

1. What is the pathological anatomy of areolar hyperplasia of the uterus?
  2. State what you can in regard to the origin of uterine disease as due to congenital, acquired, or accidental causes.
  3. What would be your treatment of a case of acute pelvic peritonitis?
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DISEASES OF CHILDREN. — Drs. OLIVER and ROTCH.

1. Symptoms, course, and treatment of chronic gastro-duodenal catarrh.
  2. Diagnosis of infantile intus-susception.
  3. Enumerate the different conditions of which vomiting is a symptom.
  4. Differential diagnosis between acute catarrh of the large intestine and dysentery.
  5. Describe the two forms of acute infantile pneumonia.
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DISEASES OF THE NERVOUS SYSTEM.

Drs. WEBBER and PUTNAM.

[N. B. — It will be considered sufficient to have answered any four of these questions.]

1. What are the symptoms and clinical history of diphtheritic paralysis?

2. To what forms of paralysis is the infant liable from artificial delivery? Give the cause, prognosis, and treatment.
  3. Give the symptoms and clinical history of migraine and of sciatica, and the treatment of the latter.
  4. What are the sequelae of cerebral haemorrhage, if the patient does not die?
  5. What are the earlier symptoms of locomotor ataxia?
  6. Give the symptoms and treatment of chronic lead poisoning.
- 

#### MENTAL DISEASES. — Assistant Professor FOLSOM.

1. What are the pathological conditions in the brain, so far as they are known, in acute melancholia, acute mania, *folie circulaire*, delusional insanity, and general paralysis?
  2. Describe the difference between delusional insanity with mental depression and melancholia with delusion of persecution.
  3. What is the prognosis in acute melancholia, acute mania, delusional insanity, *folie circulaire*, general paralysis?
  4. What are the indications for removal from home in acute melancholia, — what is its proper treatment?
  5. What are the different forms of delusional insanity and of dementia?
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#### LARYNGOLOGY. — Assistant Professor KNIGHT.

[N. B. — Each student is expected to answer two of the following questions.]

1. What are the principal difficulties in laryngoscopy, and how are they to be overcome?
  2. Describe the rhinoscopic image.
  3. Describe the more common forms of paralysis of motion in the vocal cords, unilateral and bilateral, with the laryngoscopic appearances in each.
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#### OTOLOGY. — Drs. GREEN AND BLAKE.

1. Give the dimensions and general direction of the External Auditory Canal.
  2. What is the inclination of the plane of the membrana tympani to the posterior and superior walls of the meatus?
  3. Describe the changes from the normal which are seen in the membrana tympani during the early stages of Acute Purulent Inflammation of the Tympanum.
  4. What are the indications for paracentesis of the Tympanum.
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#### FORENSIC MEDICINE. — Dr. DRAPER.

1. What is the difference between ordinary and expert medical testimony?

2. What are the post-mortem appearances by which death by drowning is diagnosed?

3. How would you distinguish, on the dead body, a recent incised wound which had been inflicted while the body was living from one which had been made, with the same weapon and in the same situation, ten hours after the person's death?

4. What are the characters of a wound, so far as its depth is concerned, which determine that its scar must be indelible?

5. How does the coal-gas, which is used for illumination, cause death when inhaled?

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### VENEREAL DISEASES. — Dr. GREENOUGH.

I. (a) What preparations of mercury are usually used in the treatment of syphilis? Give the average dose of each for an adult.

(b) What symptoms would contra-indicate the continuance of their administration?

II. To what cause may an enlargement of one or more of the inguinal glands be due, in cases of (a) gonorrhoea, (b) chancroids, (c) primary syphilitic lesion? State in each case the probable, or possible result (i. e. as to resolution or suppuration).

III. A patient consults you with an ulcer in the sulcus of the penis, which we will assume to be a typical one of its kind. Describe what condition of the sore itself (as to edges, base, surrounding tissues, &c.), and of the inguinal glands, would justify you in making the diagnosis of (a) chancroid, (b) primary syphilitic lesion.

IV. Assuming the ulcer to be a primary syphilitic lesion, when (how soon after the appearance of the chancre) would you expect to get the "secondary" symptoms and what symptoms would you expect?

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### ADMISSION EXAMINATION PAPERS.

#### LATIN.

TRANSLATE: —

Augustus in quadam villa aegrotans noctes inquietas agebat, rumpente somnum eius crebro noctuae cantu. Qua molestia cum liberari se vehementer cupere significasset, miles quidam, aucupii peritus, noctuamprehendendam curavit vivamque Augusto attulit, spe ingentis praemii. Cui Augustus mille nummos dari iussit. At ille minus dignum praemium existimans, dicere ausus est: "Malo ut vivat," et avem dimisit. Imperatori nec ad irascendum causa deerat, nec ad ulciscendum potestas; hanc tamen iniuriam aegro animo tulit Augustus, hominemque impunitum abire passus est.

Tum T. Manlius ex statione ad imperatorem pergat: "Iniussu tuo," inquit, "imperator, extraordinem nunquam pugnaverim, non, si certam victoriam videam. Si tu permittis, volo isti belluae ostendere, me ex ea familia ortum esse, quae Gallorum agmen ex rupe Tarpeia deturbant." Cui imperator: "Macte virtute," inquit, "Tite Manli, esto; perge et nomen Romanum invictum praesta."



## FRENCH.

## I.

TRANSLATE:—

## L'AVARICE PUNIE.

Trois hommes voyageaient ensemble; chemin faisant, ils trouvèrent un trésor; ils étaient bien contents. Ils continuèrent de marcher, mais la faim les prit, et l'un dit: "Il faudrait avoir à manger, qui est-ce qui en ira chercher?"—"C'est moi," répondit un second. Il part, il achète des mets\*; mais en les achetant, il pensait que s'il les empoisonnait, ses compagnons de voyage en mourraient et que le trésor lui resterait, et il empoisonna les mets. Cependant les deux autres avaient médité, pendant son absence, de le tuer et de partager entre eux le trésor. Il arriva; ils le tuèrent: ils mangèrent des mets qu'il avait apportés; ils moururent, et le trésor n'appartint à personne.

## II.

La France est, à tout prendre, le plus beau pays de l'Europe: car il est très grand, très riche, et très fertile; le climat est admirable, et il n'y fait jamais trop chaud, comme en Italie et en Espagne: ni trop froid, comme en Suède et Danemarck. Ce royaume est borné au nord par la mer qui s'appelle la Manche; au sud par la mer Méditerranée. La France n'est séparée de l'Italie que par les Alpes, qui sont de grandes montagnes, couvertes de neige la plus grande partie de l'année; et les monts Pyrénées, qui sont encore de grandes montagnes, la séparent de l'Espagne.

Les Français, en général, ont beaucoup d'esprit; ils sont aussi très braves.

## III.

## UNE VISITE À LA MÈRE DE L'EMPEREUR.

Pendant mon séjour à Rome, en 1834, la mère de l'Empereur Napoléon me fit l'honneur de m'admettre presque journellement dans son intimité.

La première fois que j'obtins l'insigne faveur d'être introduit au palais Rinuccini, auprès de l'illustre exilée, ce qui me frappa tout d'abord dans Madame Laetitia, ce fut la fermeté de son organe. Je la voyais si faible, si décharnée, si souffrante, si dévastée par les chagrins, la maladie et l'âge, qu'il me semblait que chacune de ses paroles devait être la dernière, et que cette galvanisation d'organe était comme une lueur qui éclate plus vive dans une lampe qui s'éteint.

\* des mets, food.

## GERMAN.

TRANSLATE:—

*Emilia Galotti.*—Erster Auftritt.

*Der Prinz* (an einem Arbeitstische). Klagen, nichts als Klagen! Bittschriften, nichts als Bittschriften! Die traurigen Geschäfte! und man beneidet uns noch!—Das glaub' ich, wenn wir allen helfen könnten: dann wären wir zu beneiden.—*Emilia?* (Indem er noch eine von den Bittschriften aufschlägt und nach dem unterschriebenen Namen sieht.) Eine Emilia?—Aber eine Emilia Bruneschi—nicht Galotti. Nicht Emilia Galotti!—Was will sie, diese Emilia Bruneschi? (Er liest.) Viel gefordert, sehr viel.—Doch sie heisst Emilia. Gewährt. (Er un-

terschreibt und klingelt, worauf ein Kammerdiener hereintritt.) Es ist wohl noch keiner von den Räten in dem Vorzimmer?

*Der Kammerdiener.* Nein.

*Der Prinz.* Ich habe zu früh Tag gemacht. Der Morgen ist so schön. Ich will ausfahren, Marchese Marinelli soll mich begleiten. Lasst ihn rufen. (Der Kammerdiener geht ab.)—Ich kann doch nicht mehr arbeiten. Ich war so ruhig, bild' ich mir ein, so ruhig—Auf einmal muss eine arme Bruneschi Emilia heissen:—weg auf meine Ruhe, und alles!—

*Der Kammerdiener* (welcher wieder hereintritt). Nach dem Marchese ist geschickt. Und hier, ein Brief von der Gräfin Orsina.

*Der Prinz.* Der Orsina? Legt ihn hin.

*Der Kammerdiener.* Ihr Läufer wartet.

*Der Prinz.* Ich will die Antwort senden, wenn es einer bedarf.—Wo ist sie? In der Stadt? Oder auf ihrer Villa?

*Der Kammerdiener.* Sie ist gestern in die Stadt gekommen.

*Der Prinz.* Desto schlimmer,—besser, wollt' ich sagen. So braucht der Läufer um so weniger zu warten. (Der K. geht ab.) Meine theure Gräfin (bitter, indem er den Brief in die Hand nimmt). So gut als gelesen! (und ihn wieder wegwirft).—Nun ja, ich habe sie zu lieben geglaubt! Was glaubt man nicht alles. Kann sein, ich habe sie auch wirklich geliebt. Aber—ich habe.

*Der Kammerdiener* (der nochmals hereintritt). Der Maler Conti will die Gnade haben—

*Der Prinz.* Conti? Recht wohl; lasst ihn herein kommen.—Das wird mir andere Gedanken in den Kopf bringen. (Steht auf.)

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## PHYSICS.

1. Distinguish between the resultant of two forces and what may be called their balancing force.
2. Define neutral equilibrium, and give an example.
3. How ascertain the specific gravity of a liquid?
4. What two kinds of energy are denoted by the word heat?
5. How is a thermometer graduated? How do the Fahrenheit and Réaumur scales differ from the Centigrade?
6. What is the law of reflection of light?
7. Show that if a luminous body be placed between a double convex lens and its principal focus, the image will be virtual, erect, and magnified.
8. Describe a plate electrical machine and explain its action.
9. Describe some of the properties of a magnet. What are its poles and how are they distinguished from each other?
10. Define electrolysis, electrolyte.

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## GEOMETRY.

- I. Define parallel lines; a scalene triangle; an isosceles triangle; a polygon; a trapezium; a parallelogram.

II. When the sum of two adjacent angles is equal to two right angles, their exterior sides form one and the same straight line.

III. Two equal oblique lines, drawn from the same point in a perpendicular, cut off equal distances from the foot of the perpendicular.

IV. If a straight line be perpendicular to one of two parallel lines it is perpendicular to the other.

V. Any side of a triangle is less than the sum of the other two sides.

VI. The exterior angle of a triangle is equal to the sum of the two opposite interior angles.

VII. Of two sides of a triangle, that is greater which is opposite the greater angle.

VIII. If in a quadrilateral the opposite sides be equal, the figure is a parallelogram.

IX. The diagonals of a rhombus bisect each other at right angles.

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### ALGEBRA.

[All the work is to be preserved.]

I. Give the numerical value of the following expression when  $a = 12$ ,  $b = 3$ ,  $c = 2$ , and  $d = 4$ ;  $(a - b)(c + d)$ .

II. The greater part of two numbers is 5 times the less, and their sum is 126; required, the numbers.

III. What is the sum of  $7a^2 - b$ ,  $3a^2 - 3b$ ,  $6a^2 - 2b$ ,  $2a^2 - b$ ,  $4a^2 - 6b$ , and  $a^2 - 4b$ ?

IV. Multiply  $a + 2x$  by  $a - 3x$ .

V. Divide  $a(x + y) - b(x + y)$  by  $(x + y)$ .

VI. Divide  $a^5 + x^5$  by  $(a + x)$ .

VII. Multiply  $\frac{a + b}{ax}$  by  $\frac{4ax^2}{6}$ .

VIII. Divide  $\frac{a + b}{2}$  by  $\frac{a - b}{2}$ .

IX. A merchant sold at one time 3 hats and 4 caps for \$23, and at another time 2 hats and 7 caps for \$24; what was the price of each?

X. There is a number consisting of two figures, which is equal to four times the sum of these figures, and if 9 be subtracted from twice the number the places of the figures will be reversed; what is the number?

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### ENGLISH.

[A fair knowledge of spelling and grammar will be required.]

1. Write an English composition (such as a letter, a description of a place, etc.) of not less than two hundred words.

2. Write from dictation, for ten minutes, from the beginning of Sir Walter Scott's "Guy Mannering," or any other story.

3. Spell the following words:—conceit, disease, victual, fever, conscience, pursuit, vinegar, cannibal, ceiling.

## BOTANY.

1. Name and describe the parts of a buttercup, flower and fruit.

2 and 3. Describe (and sketch if you can) two of the following-named plants:—

Tulip; Sugar-maple (*Acer saccharinum*); Wistaria (*W. frutescens*); Apple (*Pyrus malus*); Apple of Peru [Jamestown weed] (*Datura stramonium*); Castor-oil bean (*Ricinus communis*); Mountain-laurel (*Kalmia latifolia*); Indian Corn (*Zea Mays*).

\*4. What medicinal plants in the orders *umbelliferae*; *ranunculaceae*; *papaveraceae*; *euphorbiaceae*; *convolvulaceae*; *cucurbitaceae*?

5. With how many species of flowers in your own neighborhood are you familiar?

Mention and describe two or three (not included above).

\* Answer three out of the six.



